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<223> n equals a,t,g, or c
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<222> (585)
<223> n equals a,t,g, or c
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Control of the contro

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and the second second second

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\$ 5.

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gagetagete etgecagegg ggagaaagge caggetgage gaggeeetg gaggeaaaaa 720
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| aagggatcga | ggccgtttt | t gaagcttacc | aggaacacat | agaagagcaa | aatctggago | 1200 |
| ggcaggtgtt | acagacaca | a tgtagacgac | tggaggcccg | gcactacago | ctcagcctga | 1260 |
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| | | c tacctgaagg | | | | |
| | | g aaatattatc | | | | |
| | | tacaaaatga | | | | |
| | | gaactcacct | | | | |
| | | aggattgccc | | | | |
| | | tcttaatctg | | | | |
| | | tgtgcatatg | | | | |
| | | tcaagcccag | | | | |
| | | a aacttgcttc | | | | |
| | | tttactttcc | | | | |
| | | : aaaggctttt | | | | |
| | | aggtagcttt | | | | |
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| | | gtatgtttt | | | | |
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| | | ggcaaaaaaa | | | | |
| | | aaatattgaa | | | | |
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| aagctgccgt | agaaagccat | gcgctactgc | ttacctcctc | cactccccct | gcctgccccc | 2580 |
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| caggaagtca | atgatttctg | tgattgatat | aattctaagg | tgtctgagag | caggtacaga | 2760 |
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| ggagtctgct | acaaactatc | agggcaaaat | ctcactggaw | ttctccactg | aaaacctact | 3420 |
| tgaggtttct | ggtctgaagg | cttaagagtc | acatcttagc | acttccgctc | tcaggcctcc | 3480 |
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| cgatctgagt | actctactct | tgctcaagaa | gtaatacgac | aatcagaata | caaaccagta | 3840 |
| aggcaacacg | aataaactaa | gaaaaaggta | agaactgtct | caaaaacgaa | accacaccca | 3900 |
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<211> 1427

<211> 920

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 <220>
 <221> misc feature
 <222> (12)
 <223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (29)
<223> n equals a,t,g, or c
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ccaggcctct gccggggcag cgactggcgc tactggggcc agcrggggcg gtggccccat 180
caacceggee tegetgeete eeggegaeee geageteate geteteateg tggageaget 240
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<210> 640
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<212> DNA
 <213> Homo sapiens
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 <222> (910)
 <223> n equals a,t,g, or c
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 <221> misc feature
 <222> (919)
 <223> n equals a,t,g, or c
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gctcaggatg tcttcatcac attttgccag tcgacacagg aaggatataa gtactgaaat 180
gattagaact aaaattgctc ataggaaatc actgtctcag aaagaaaata gacataagga 240
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aattottgtt gaattagatg agacatotca agggottgtt ccagaaaaga ccaatgttaa 360
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<211> 1706
<212> DNA
<213> Homo sapiens
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<222> (2155)

<223> n equals a,t,g, or c

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<211> 2170
<212> DNA
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<222> (811)
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<221> misc feature
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<221> misc feature
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 <223> n equals a,t,g, or c
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 gcaaagaagg cactggcagg acagctgcct gcagtcggga ggtccatgtg tgtggagatt 240
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 ctgaagtccc ttcttgctat aactagggtg acaccagcct ataggntctc caggaaacaa 420
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<223> n equals a,t,g, or c

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ccagttcctg ccgcccaacc ttctggccct ctttgccccc cgtgacccta ttccatacct 480
gccacccctg gagaaactgc cacatgaaaa acaccacaat caaccttatt gtggcattgc 540
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ccgagaggag cgcatggaga ggaaaagacg ggaaaagatt gagcggcgac agcaagaagt 660
ggagacagag cttaaaatgt gggaccctca caatgatccc aatgctcagg gggatgcctt 720
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Phosphotase (1:5,000 dilution, referred to herein as the working dilution) are added to each well and incubated at 37° C for 30 min. Wells are washed three times with PBS(+Ca,Mg)+0.5% BSA. Dissolve 1 tablet of p-Nitrophenol Phosphate pNPP per 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphotase in glycine buffer: 1:5,000 (10^{0}) > $10^{-0.5}$ > 10^{-1} > $10^{-1.5}$. 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNNP reagent is then added to each of the standard wells. The plate is incubated at 37° C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The plate is read on a plate reader at 405 nm using the background subtraction option on blank wells filled with glycine buffer only. Additionally, the template is set up to indicate the concentration of APconjugate in each standard well [5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

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Example 46: Alamar Blue Endothelial Cells Proliferation Assay

This assay may be used to quantitatively determine protein mediated inhibition of bFGF-induced proliferation of Bovine Lymphatic Endothelial Cells (LECs), Bovine Aortic Endothelial Cells (BAECs) or Human Microvascular Uterine Myometrial Cells (UTMECs). This assay incorporates a fluorometric growth indicator based on detection of metabolic activity. A standard Alamar Blue Proliferation Assay is prepared in EGM-2MV with 10 ng/ml of bFGF added as a source of endothelial cell stimulation. This assay may be used with a variety of endothelial cells with slight changes in growth medium and cell concentration. Dilutions of the protein batches to be tested are diluted as appropriate. Serum-free medium (GIBCO SFM) without bFGF is used as a non-stimulated control and Angiostatin or TSP-1 are included as a known inhibitory controls.

Briefly, LEC, BAECs or UTMECs are seeded in growth media at a density of 5000 to 2000 cells/well in a 96 well plate and placed at 37-C overnight. After the

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overnight incubation of the cells. the growth media is removed and replaced with GIBCO EC-SFM. The cells are treated with the appropriate dilutions of the protein of interest or control protein sample(s) (prepared in SFM) in triplicate wells with additional bFGF to a concentration of 10 ng/ml. Once the cells have been treated with the samples, the plate(s) is/are placed back in the 37°C incubator for three days. After three days 10 ml of stock alamar blue (Biosource Cat# DAL1100) is added to each well and the plate(s) is/are placed back in the 37°C incubator for four hours. The plate(s) are then read at 530nm excitation and 590nm emission using the CytoFluor fluorescence reader. Direct output is recorded in relative fluorescence units.

Alamar blue is an oxidation-reduction indicator that both fluoresces and changes color in response to chemical reduction of growth medium resulting from cell growth. As cells grow in culture, innate metabolic activity results in a chemical reduction of the immediate surrounding environment. Reduction related to growth causes the indicator to change from oxidized (non-fluorescent blue) form to reduced (fluorescent red) form. i.e. stimulated proliferation will produce a stronger signal and inhibited proliferation will produce a weaker signal and the total signal is proportional to the total number of cells as well as their metabolic activity. The background level of activity is observed with the starvation medium alone. This is compared to the output observed from the positive control samples (bFGF in growth medium) and protein dilutions.

Example 47: Detection of Inhibition of a Mixed Lymphocyte Reaction

This assay can be used to detect and evaluate inhibition of a Mixed Lymphocyte Reaction (MLR) by gene products (e.g., isolated polypeptides). Inhibition of a MLR may be due to a direct effect on cell proliferation and viability, modulation of costimulatory molecules on interacting cells, modulation of adhesiveness between lymphocytes and accessory cells, or modulation of cytokine production by accessory cells. Multiple cells may be targeted by these polypeptides

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since the peripheral blood mononuclear fraction used in this assay includes T, B and natural killer lymphocytes, as well as monocytes and dendritic cells.

Polypeptides of interest found to inhibit the MLR may find application in diseases associated with lymphocyte and monocyte activation or proliferation. These include, but are not limited to, diseases such as asthma, arthritis, diabetes, inflammatory skin conditions, psoriasis, eczema, systemic lupus erythematosus, multiple sclerosis, glomerulonephritis, inflammatory bowel disease, crohn's disease, ulcerative colitis, arteriosclerosis, cirrhosis, graft vs. host disease, host vs. graft disease, hepatitis, leukemia and lymphoma.

Briefly, PBMCs from human donors are purified by density gradient centrifugation using Lymphocyte Separation Medium (LSM®, density 1.0770 g/ml, Organon Teknika Corporation, West Chester, PA). PBMCs from two donors are adjusted to 2 x 10⁶ cells/ml in RPMI-1640 (Life Technologies, Grand Island, NY) supplemented with 10% FCS and 2 mM glutamine. PBMCs from a third donor is adjusted to 2 x 10⁵ cells/ml. Fifty microliters of PBMCs from each donor is added to wells of a 96-well round bottom microtiter plate. Dilutions of test materials (50 µl) is added in triplicate to microtiter wells. Test samples (of the protein of interest) are added for final dilution of 1:4; rhuIL-2 (R&D Systems, Minneapolis, MN, catalog number 202-IL) is added to a final concentration of 1 µg/ml; anti-CD4 mAb (R&D Systems, clone 34930.11, catalog number MAB379) is added to a final concentration of 10 µg/ml. Cells are cultured for 7-8 days at 37°C in 5% CO₂, and 1 µC of [³H] thymidine is added to wells for the last 16 hrs of culture. Cells are harvested and thymidine incorporation determined using a Packard TopCount. Data is expressed as the mean and standard deviation of triplicate determinations.

Samples of the protein of interest are screened in separate experiments and compared to the negative control treatment, anti-CD4 mAb, which inhibits proliferation of lymphocytes and the positive control treatment, IL-2 (either as recombinant material or supernatant), which enhances proliferation of lymphocytes.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

It will be clear that the invention may be practiced otherwise than as particularly described in the foregoing description and examples. Numerous modifications and variations of the present invention are possible in light of the above teachings and, therefore, are within the scope of the appended claims.

The entire disclosure of each document cited (including patents, patent applications, journal articles, abstracts, laboratory manuals, books, or other disclosures) in the Background of the Invention, Detailed Description, and Examples is hereby incorporated herein by reference. Further, the hard copy of the sequence listing submitted herewith and the corresponding computer readable form are both incorporated herein by reference in their entireties. Moreover, the hard copy of and the corresponding computer readable form of the Sequence Listing of Serial No. 60/124,270 are also incorporated herein by reference in their entireties.

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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

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| A. The indications made below relate to the microorganism referred on page100 | ed to in the description N/A | |
| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet | |
| Name of depositary institution American Type Culture Collec | | |
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| Address of depositary institution tincluding postal code and countr | | |
| 10801 University Boulevard | | |
| Manassas, Virginia 20110-2209 United States of America | | |
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| Date of deposit 20 May 1997 | Accession Number | |
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| C. ADDITIONAL INDICATIONS (leave blank if not applicable) | This information is continued on an additional sheet | |
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ATCC Deposit No.: 209059

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

ATCC Deposit No.: 209059

DENMARK

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NETHERLANDS

Applicant's or agent's file reference number

PA101PCT

International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

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ATCC Deposit No.: 209060

CANADA

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UNITED KINGDOM

ATCC Deposit No.: 209060

DENMARK

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NETHERLANDS



Applicant's or agent's file reference number

PA101PCT

. International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

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ATCC Deposit No.: 209061

CANADA

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UNITED KINGDOM

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NETHERLANDS

Applicant's or agent's file reference number

PA101PCT

International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

| A. The indications made below relate to the microorganism referred to in the description | | |
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| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet | |
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| D. DESIGNATED STATES FOR WHICH INDICATION | NS ARE MADE (if the indications are not for all designated States) | |
| Europe | | |
| In respect to those designations in which a European P microorganism will be made available until the publication | atent is sought a sample of the deposited | |
| microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by | | |
| the issue of such a sample to an expert nominated by the | ne person requesting the sample (Rule 28 (4) EPC). | |
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| Auth@ongarD.Barnes | | |
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| (703) 306-3865 | | |

ATCC Deposit No.: 209062

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NETHERLANDS

Applicant's or agent's file reference number

PA101PCT

International application No.

UNASSIGNED

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| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet | |
| Name of depositary institution American Type Culture Collection | | |
| Address of depositary institution fincluding postal code and country) 10801 University Boulevard Manassas. Virginia 20110-2209 United States of America | | |
| Date of deposit Acc | ession Number | |
| 20 May 1997 | 209063 | |
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NETHERLANDS

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| Author Sanya D: Barnes | Authorized officer | |
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NETHERLANDS

Applicant's or agent's file reference number PA101PCT International application No. UNASSIGNED

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| the issue of such a sample to an expert nominated | by the person requesting the sample (Rule 28 (4) EPC). | | |
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ATCC Deposit No.: 209068

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

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UNITED KINGDOM

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NETHERLANDS

Applicant's or agent's file reference number

PA101PCT

International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

| A. The indications made below relate to the microorganism referre | ed to in the description N/A |
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| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet |
| Name of depositary institution American Type Culture Collect | stion |
| Address of depositary institution timelading postal code and country 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America | Jv) |
| Date of deposit | Accession Number |
| 20 May 1997 | 209069 |
| C. ADDITIONAL INDICATIONS (leave blank if not applicable | This information is continued on an additional sheet |
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NETHERLANDS

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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

| A. The indications made below relate to the microorganism referred on page | ed to in the description N/A |
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| B. IDENTIFICATIONOFDEPOSIT | Further deposits are identified on an additional sheet |
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| Address of depositary institution tincluding postal code and country 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America |) |
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| Authorized officer Sonya D. Barnes PCT/Internat1 Appl Processing Dly (703) 306-3865 | Authorized officer |

Form PCT/RO/134 (July 1992)

ATCC Deposit No.: 209579

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NETHERLANDS

Applicant's or agent's file reference number

PA101PCT

International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

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| Address of depositary institution tincluding postal code and | country | | |
| 10801 University Boulevard | · | | |
| Manassas, Virginia 20110-2209 United States of America | | | |
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| (703) 305-3665 | | | |

ATCC Deposit No.: 209578

CANADA

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NETHERLANDS

Applicant's or agent's file reference number

PA101PCT

! International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

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| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet |
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| Address of depositary institution (including postal code and count | |
| 10801 University Boulevard | .i. |
| Manassas, Virginia 20110-2209 United States of America | |
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| Date of deposit | |
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| C. ADDITIONAL INDICATIONS (leave blank if not applicable | This information is continued on an additional sheet |
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ATCC Deposit No.: 203067

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NETHERLANDS

Applicant's or agent's file reference number

PA101PCT

International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

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ATCC Deposit No.: 203068

DENMARK

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SWEDEN

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NETHERLANDS

Applicant's or agent's file reference number PA101PCT International application No. UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

| A. The indications made below relate to the microorganism refere on page100 line | ed to in the description N/A |
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| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet |
| Name of depositary institution American Type Culture Collect | ction |
| Address of depositary institution (including postal code and country 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America | 7.7) |
| Date of deposit | Accession Number |
| 01 February 1999 | . 203609 |
| C. ADDITIONAL INDICATIONS (leave blank if not applicable | This information is continued on an additional sheet |
| D. DESIGNATED STATES FOR WHICH INDICATION Europe In respect to those designations in which a European Pamicroorganism will be made available until the publication until the date on which application has been refused of the issue of such a sample to an expert nominated by the | atent is sought a sample of the deposited on of the mention of the grant of the European patent or withdrawn or is deemed to be withdrawn, only by |
| E. SEPARATE FURNISHING OF INDICATIONS (leave b) | ankifnot applicable) |
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| For receiving Office use only | For International Bureau use only |
| This sheet was received with the international application | This sheet was received by the International Bureau on: *** |
| Authoriædným D. Barnes POT/Internat'l Appl Processing Div (703) 306-3865 | Authorized officer |

ATCC Deposit No.: 203609

CANADA

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

ATCC Deposit No.: 203609

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NETHERLANDS

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| Applicant's or agent's file | PA101PCT | International application No. | 13140010155 |
| reference number | PATOTPCT | | UNASSIGNED |
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

| A. The indications made below relate to the microorganism referred to in the description on page | | | |
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| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet | | |
| Name of depositary institution American Type Culture Colle | ction . | | |
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| Address of depositary institution (including postal code and count 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America | ب | | |
| Date of deposit | Accession Number | | |
| 01 February 1999 | 203610 | | |
| C. ADDITIONAL INDICATIONS tleave blank if not applicable | z) This information is continued on an additional sheet | | |
| D. DESIGNATED STATES FOR WHICH INDICATION Europe In respect to those designations in which a European Participation will be made available until the publication until the date on which application has been refused the issue of such a sample to an expert nominated by the | atent is sought a sample of the deposited on of the mention of the grant of the European patent or withdrawn or is deemed to be withdrawn, only by | | |
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| Authorized officer Sonya D. Barnes PCT/Int rnat'l Appl Processing Div (703) 305-3665 | Authorized officer | | |

ATCC Deposit No.: 203610

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UNITED KINGDOM

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NETHERLANDS

| Applicant's or agent's file | | Harris II II II II | |
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| reference number | PA101PCT | International application No. | UNASSIGNED |
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

| P. Tirving Toylors | N/A |
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| B. IDENTIFICATIONOFDEPOSIT | Further deposits are identified on an additional sheet |
| Name of depositary institution American Type Culture | |
| | |
| Address of depositary institution (including postal code and 10801 University Boulevard | d country) |
| Manassas, Virginia 20110-2209 | |
| United States of America | |
| | |
| Date of deposit 17 November 1998 | Accession Number |
| | 203485 |
| C. ADDITIONAL INDICATIONS (leave blank it not ap, | plicable) This information is continued on an additional sheet |
| DESIGNATED STATES FOR WHICH INDICA | |
| urope n respect to those designations in which a Europe nicroorganism will be made available until the pub r until the date on which application has been refu | lication of the mention of the grant of the European patent |
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CANADA

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UNITED KINGDOM

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NETHERLANDS

| Applicant's or agent's file | PA101PCT | International application No. | UNASSIGNED |
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

| A. The indications made below relate to the mic | _ | · |
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| on page 100 | , line | N/A |
| B. IDENTIFICATIONOF DEPOSIT | | Further deposits are identified on an additional sheet |
| Name of depositary institution American Type Culture Collection | | |
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| Address of depositary institution (including pos | ital code and count | (אָר |
| 10801 University Boulevard Manassas, Virginia 20110-2209 | | |
| United States of America | | |
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| C. ADDITIONAL INDICATIONS (leave bi | ank it not applicable | this information is continued on an additional sheet |
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| D. DESIGNATED STATES FOR WHICH | INDICATION | S ARE MADE (if the indications are not for all designated States) |
| Europe | | |
| In respect to those designations in which | a European Pa | atent is sought a sample of the deposited |
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| or until the date on which application has the issue of such a sample to an expert o | been retused (cominated by th | or withdrawn or is deemed to be withdrawn, only by be person requesting the sample (Rule 28 (4) EPC). |
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| E. SEPARATE FURNISHING OF INDIC | | |
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| (703) 306-3665 | | |

ATCC Deposit No.: PTA-252

CANADA

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UNITED KINGDOM

ATCC Dep sit No.: PTA-252

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NETHERLANDS

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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

| A. The indications made below relate to the microorganism referred to in the description | | | |
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| on page100, line | N/A . | | |
| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet | | |
| Name of depositary institution American Type Culture Collection | | | |
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| Address of depositary institution fincluding postal code and count 10801 University Boulevard | l, i. | | |
| Manassas, Virginia 20110-2209 | | | |
| United States of America | | | |
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| Date of deposit 18 June 1999 | Accession Number PTA-253 | | |
| 16 Julie 1999 | F 1A-255 | | |
| C. ADDITIONAL INDICATIONS (leave blank if not applicable | 2) This information is continued on an additional sheet | | |
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| D. DESIGNATED STATES FOR WHICH INDICATION | IS ARE MADE (if the indications are not for all designated States) | | |
| Europe | | | |
| In respect to those designations in which a European Pamicroorganism will be made available until the publication | | | |
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| the issue of such a sample to an expert nominated by the | ne person requesting the sample (Rule 28 (4) EPC). | | |
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| E. SEPARATE FURNISHING OF INDICATIONS (leave b. | lank if not applicable) | | |
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| This sheet was received with the international application | This sheet was received by the International Bureau on: | | |
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| PST/Internat'l Appl Processing Div (703) 305-3665 | | | |
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ATCC Deposit No.: PTA-253

CANADA

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UNITED KINGDOM

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The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number

PA101PCT

International application No.

UNASSIGNED

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

| A. The indications made below relate to the microorganism referred to in the description on page 100, line N/A | |
|--|---|
| B. IDENTIFICATIONOF DEPOSIT | Further deposits are identified on an additional sheet |
| Name of depositary institution American Type Culture Collection | |
| Address of depositary institution (including postal code and country 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America | ייר |
| Date of deposit | Accession Number |
| 22 December 1999 | ′ PTA-1081 |
| C. ADDITIONAL INDICATIONS (leave blank if not applicable | This information is continued on an additional sheet |
| D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States) Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC). | |
| E. SEPARATE FURNISHING OF INDICATIONS (leave blanki) not applicable) | |
| The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit") | |
| For receiving Office use only | . For International Bureau use only |
| This sheet was received with the international application | This sheet was received by the International Bureau on: |
| Authorized Officer D. Barnes PCT/Int rnat'l Appl Processing Dlv (703) 305-3665 | A uthorized officer |

ATCC Deposit No.: PTA-1081

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

ATCC Deposit No.: PTA-1081

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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What Is Claimed Is:

- 1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:
- (a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
- (b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
- (c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
- (d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
- (e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
- (f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X, having biological activity;
 - (g) a polynucleotide which is a variant of SEQ ID NO:X;
 - (h) a polynucleotide which is an allelic variant of SEQ ID NO:X;
- (i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y;
- (j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide

sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a protein.

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3. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding the sequence identified as SEQ ID NO:Y or the polypeptide encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

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4. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises the entire nucleotide sequence of SEQ ID NO:X or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

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5. The isolated nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

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6. The isolated nucleic acid molecule of claim 3, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

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7. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.

8. A method of making a recombinant host cell comprising the isolated nucleic acid molecule of claim 1.

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9. A recombinant host cell produced by the method of claim 8.

- 10. The recombinant host cell of claim 9 comprising vector sequences.
- 11. An isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:
 - (a) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (b) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone, having biological activity;
 - (c) a polypeptide domain of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (d) a polypeptide epitope of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
- (e) a full length protein of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (f) a variant of SEQ ID NO:Y;
 - (g) an allelic variant of SEQ ID NO:Y; or
 - (h) a species homologue of the SEQ ID NO:Y.
- 20 12. The isolated polypeptide of claim 11, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.
- 13. An isolated antibody that binds specifically to the isolated polypeptide of claim 11.
 - 14. A recombinant host cell that expresses the isolated polypeptide of claim 11.
- 30 15. A method of making an isolated polypeptide comprising:

- (a) culturing the recombinant host cell of claim 14 under conditions such that said polypeptide is expressed; and
 - (b) recovering said polypeptide.
- 16. The polypeptide produced by claim 15.
- 17. A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 11 or the polynucleotide of claim 1.

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- 18. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
- (a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and
- (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.
- 19. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
- (a) determining the presence or amount of expression of the polypeptide of claim 11 in a biological sample; and
- (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.
- 25 20. A method for identifying a binding partner to the polypeptide of claim 11 comprising:
 - (a) contacting the polypeptide of claim 11 with a binding partner; and
 - (b) determining whether the binding partner effects an activity of the polypeptide.

- 21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.
- 22. A method of identifying an activity in a biological assay, wherein the method comprises:
 - (a) expressing SEQ ID NO:X in a cell;
 - (b) isolating the supernatant:
 - (c) detecting an activity in a biological assay; and
 - (d) identifying the protein in the supernatant having the activity.
- The product produced by the method of claim 20.

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لي المعامل المعامدة

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AND THE RESERVE OF THE PARTY OF

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tccgaactcc acagcaatga gcaagttggg caagttcttt aaagggggcg gctcttctaa 180
gageegagee geteceagte eecaggagge eetggteega ettegggaga etgaggagat 240
gctgggcaag aaacaagagt acctggaaaa tcgaatccag agagaaatcg ccctggccaa 300
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<211> 374
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<213> Homo sapiens
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aacaaaattg ttttctgtga aaagcaggaa atgaataaca acagcgtagg tactccactt 180
caaatttccc aagaaattca gaagaattgt gaacaagttg ctggtttcac aatactgcaa 240
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<222> (221)
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<222> (411)
<223> n equals a,t,g, or c
<400> 73
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<222> (1021)
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<213> Homo sapiens
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<400> 116

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and the second second second

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and the second

91

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catcctatta aagtcacact gccaaccatt aaagacggct ctgaagctta ccggcctggt 180
acaacccaga gagtgcctgc tgcttcccca tctgctcaca gtattagtac tgcgactcca 240
gaccggaccc gttttccccg agggagctca agccgaagca ctttccatgg tgaacagctc 300
cgggagcgac gcagcgttgc ttataatggg ccacctgctt caccatccca tgaaacgggt 360
gcatttgcaa tgccagaagg ggaacgtcaa ctggtataat aagcaaaatc acatccaaat 420
ttgttcgcag ggatccaagt gaaggcganc agntggcaga accgacacct caagaagtac 480
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4 5 4

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aatccgaaaa gtgttagatg caaataactg tgattatgag caaaaagaga gatttttgct 660
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caagttgcca cgactgtcac ttaatggggt tcgcttcaag cgaatatctg ggacatctat 780
tgcctttaag aacattgcat caaaaatagc aaatgagctt aagctgtaaa gaagtccaaa 840
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tgcctaatgt ggtctgcctg tgaatctccc catgtagaat ttgcccttaa tgcaataagg 960
ttatacatag ttatgaactg taaaattaaa gtcagtatga actataataa atatctgtag 1020
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<211> 1969
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<213> Homo sapiens
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<221> misc feature
<222> (479)
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gggcagccca aggcggaccc ccagagctcg gggtgcaggg acgcggggct ccgcggcgac 240
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tgcccacctg gatcctaaca ccggatgtct tttggtctgg ccttcccggg tatcttgttc 780
cacggcattt teeetgeete eeteteeege eteteeteag cacacagate cagaateeee 840
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ccgcagaagc gctcccgagc tgccttctcc cacactcagg tgatcgagtt ggagaggaag 1260
ttcagccatc agaagtacct gtcggcccct gaacgggccc acctggccaa gaacctcaag 1320
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cageteteet eggagetggg agaettggag aageaeteet etttgeegge eetgaaagag 1440
aggeettete eegggeetee etggteteeg tgtataacag etateettae tacceatace 1500
tgtactgcgt gggcagtgga gcccagcttt tkggtaatgc cagctcaggt gacaaccatt 1560
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ggagcaagag tgtgcacacc aamgctattg gagatttgcg tggaaakctc agattcttca 1680
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 aatcaagtgg tattttccag cactttgtat gattttggat gagttgtaca cccaaggatt 1860
 ctgttatgca actccatcct cctgtgtcac tgaatatcaa ctctgaaaga gcaaacctaa 1920
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<211> 400
 <212> DNA
<213> Homo sapiens
<220>
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<222> (398)
<223> n equals a,t,g, or c
<400> 156
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ctgatgtaat tattaataat actgcctcat tcagtcttaa ataagtcttg grtttggact 300
agaaattata tggctaccyc tttatgtggg actaaaagta attccttgrg acmgggacnt 360
ggagtnaggt gcccaaggaa agctagaagg tagttttntc
                                                             400
<210> 157
<211> 722
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (720)
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tgccaagtct gaaaattgtg tccacaagat ttgattggta gtattttcta tcattgtaca 120
acttaaaata tottotaatt tooatttttt ttttttgaca tgagttgtat agaaatgtgt 180
gcttcagttt ctgttatagc aacaactett gtcacccata gccttacaaa aattectaat 240
```

```
tttaatattt aaattttaga attckacrag cagaattaca aaaagagtaa ctaacaagaa 300
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 catgggaatg acaatcaaaa tggactaagg acttagaaga tccgaaacta tgaagctact 420
 aaaagaaaca ttggggaatg ctccaggaca ttggtctggg caaagatttc ttgagcaata 480
 ccttaaaagg acaggcaacc caagcaaaaa tggrcagwtg ggwtcmcwtc magctaaaaa 540
 acttctacac agcgaaggaa acaaagtgaa cagaataaca tgggaatgtt ttctgtaatt 600
 tagtagtaac tggcaatagt ttacaaacac attttgtgta tactgctgtc attgcactga 660
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<222> (274)
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tgatactagg gaagatcagt ggattaatat aggtaccatg ttaggccttt tgcagtttga 180
ctctggcttt atttgccttt gtgctcgtgt ttatccttcc tgccttgaac ctggtcagag 240
ttttattact gaggaagatg atgcacggag tagntctagt actgaatggg acttagatgg 300
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tccagaatta aaatatggaa gcaagaacta tataattgat taggatgctt ggtaggtttt 660
tttcattgtt caaatattca ttgcacagtg gattgttttg attagttagt atgcttttt 720
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tgtactttcc ttcaaaataa agtggtagat tttcaaaatt ttacactagt cagttcttta 900
tattctaagt taaatgtagt ttgtaaaatt attttggttt tcttctacaa aggaaaaaat 960
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ctgttttaaa agaaatctca gtttttattt tggaatataa aatgtgtatt tggtatatgt 1140
gaccaatttt ctatcccaaa aaacacccat tcttagtaat gtcatgaatt aaacaccctt 1200
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<211> 345
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (316)
<223> n equals a,t,g, or c
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 <221> misc feature
 <222> (321)
 <223> n equals a,t,g, or c
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gtacaaagct aaccacaact aawttattgt atataargcc acgtgaagtg stgtgtgaca 180
gccttatttt gtgaataggg ctgagaaaac cagttcaaat tctcctgaga ctatttcaga 240
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<210> 160
<211> 476
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (312)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (377)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (421)
<223> n equals a,t,g, or c
<400> 160
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ggtgcctgct gactgtcccc agactgtctc ccgacacaga gggatgcaaa ggcagcctct 180
tectgeteag tggaataggg aaattatate acettteact teceaetete acttetgeee 240
ctgctaccct tagtctttgg cttttgctga cattttcccc tcttatcttt tctcctgacc 300
aagttctagg tntttcatag ggcagtctta ggtgagggtt ggaaccccaa tgaagttggg 360
caacagaaac ccagcinaca aiggcigitc actgigggca agcigittcc ccitcatcii 420
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<210> 161
<211> 520
<212> DNA
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<220>
<221> misc feature
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<222> (512)
 <223> n equals a,t,g, or c
 <220>
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<222> (520)
<223> n equals a,t,g, or c
<400> 161
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tgccaaaacc tcggatgcgt ggccttctgg ccaggcgtct gcgaaatcat atggctgtag 180
cattcgtgct atccctgggg gttgcagctt tgtataagtt tcgtgtggct gatcaaagaa 240
agaaggcata cgcagatttc tacagaaact acgatgtcat gaaagatttt gaggagatga 300
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tgaattacct agaagtttgt cactgacttg tgttcctgaa ctatgacaca tgaatatgtg 420
ggctaagaaa tagttcctct tgataaataa acaattaaca aataaaaaaa aaaaaaaagg 480
ggggggcccc tctaaaaggt ccaagcttac gnacgggtgn
                                                                    520
<210> 162
<211> 339
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (109)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (334)
<223> n equals a,t,g, or c
<400> 162
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tttcttcacg ttggctaggc tgatcttgaa ctcctgacct caagtggtnt gcctgcctca 120
tecteceaaa gtgetgggat tacaggegtg acacetgeac ceaeceatge tetagtacat 180
cctaaagaat gcctttagtt cctctttcct gacattactc tgcttaaatt ccccagattc 240
aagctttttg agaatcctat ctcagcattt tgggcatcag gccatgttat atataggtrc 300
acaacttcta ggccttgttt agttggacag gttnaaaag
                                                                   339
<210> 163
<211> 357
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (343)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (349)
<223> n equals a,t,g, or c
<400> 163
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ccagctcagc cacgtggctg atgctgtctg aacctcagcg tcctcagctg ttaaacagag 180
gtaaccatcc ccatctcagc agctttggga ggaaattaaa tgagatatat tggggatcca 240
gataaccaat aaaatatcaa atcactttac cagttcaagc tettaccact tcagtgattg 300
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<210> 164
<211> 1079
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (303)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (831)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (993)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1058)
<223> n equals a,t,g, or c
<400> 164
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cttgagaatc acttgttagt tcttggtagg aattcagttg ggcaatgata acttttatgg 180
gcaaaaacat tctattatag tgaacaaatg aarataacag cgtattttca atattttctt 240
attecttaaa ttecaetett ttaacaetat gettaaceae ttaatgtgat gaaatattee 300
tanaagttaa atgactatta aagcatatat tgttgcatgt atatattaag tagccgatac 360
tctaaatara rataccactg ttacagataa atggggcctt taaaaatatg aaaaacaaac 420
ttgtgaaaat gtataaaaga tgcatctgtt gtttcaaatg gcactrtctt yttttcagta 480
ctacaaaaac agaataattt tgaagtttta gaataaatgt aatatattta ctataattct 540
aaatgtttaa atgcttttct aaaaatgcaa aactatgatg tytagttgct ttattttacc 600
totatgtgat tatttttctt aattgttatt ttttataatc attattttc tgaaccattc 660
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ttctggcctc agaagtagga ctgaattcta ctattgctag gtgtgagaaa gtggtggtga 720
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<210> 165
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ggacaaatga ttagccctaa atgaaactgt aataatttca gtggaaactc aatctgtttt 180
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gaaaattata cagtgcttaa ttttcagaga ttctttccat atgttactaa aaaatgtttt 300
gttcagccta acatactgag ttttttttaa ctttctaaat tattgaattt ccatcatqca 360
ttcatccaaa attaaggcag actgtttgga ttcttccagt ggccagatga gctaaattaa 420
atcacaaaag cagatgcttt tgtatgatct ccaaattgcc aactttaagg aaatattctc 480
ttgaaattgt ctttaaagat cttttgcagc tttgcagata cccagactga gctggaactg 540
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acaggagece tggcagetgt etecagagga teaaagecae acceaaagag taaggeagat 780
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cattgtaaat ctgggtgtgt tacatgaagt gaaaattaat tctttctgcc cttcagttct 900
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<211> 394
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<212> DNA

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 <222> (316)
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<220>
<221> misc feature
<222> (341)
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<222> (376)
<223> n equals a,t,g, or c
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<222> (392)
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aatttcatgc tatttatctg tgagaaaatg cctgaggact ttcacacagt aattcatctt 180
atctggaacc cttaggatca gatgtagacc gagcaaatgt caagttcaca gagaacacct 240
gtgtcttcag aacattaaag ggcaccatta gagcttgttt cccttcactt tacatgcaca 300
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<211> 517
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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gncagttcgt cggctgccag caacaatcac caggtacgtc tcacttcctc cttctggatg 180
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gtactaacaa agaaatcacc tgttwagcct gataatgact gtttgcaaat ttattataag 360
agaaaaggca gggtattgag ggttgctttt aggaagtctn nccatgatat ggaacacaga 420
ccccagaaac ttgcaaatac cctcttaggt taaggcatgg aaagaggagg angagagag 480
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<210> 168
<211> 341
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (335)
<223> n equals a,t,g, or c
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gcataatatt ttcaatgttc atccattttg aagctccatg tgagtgggca ggaacttgtt 180
aactggaggc cttcactgag aagtgattaa ggtgatgaat acctgccagt gcagtggctt 240
cacacctgta ctccagcact ttggggaggc caaggcagga agatcatttg agccccagga 300
tttsgggacc accttkggca atatagtgag acccngtgtt t
<210> 169
<211> 350
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (293)
<223> n equals a,t,g, or c
<220>
<221> misc f ature
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<222> (305)
 <223> n equals a,t,g, or c
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<222> (343)
<223> n equals a,t,g, or c
<400> 169
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atcacacatc taaatgtgaa atgcaaaata ataaagcttt aagaaaaaaa gtaatggaac 120
catcttcatg atcttagagt aagtagagat ttattaagta ggatattaaa ggaacactat 180
aaatttaggg aaaaaatcaa tatattgatt atattaaaat taaggaactt ttcctcatta 240
agaggccaca aagtatttgt agtatacaca tccaacaaaa gttccatatt ccngaatwtw 300
tgganggaat nccnatggta cgttaaaaaa aggccagncc canggggggg
                                                                   350
<210> 170
<211> 441
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (111)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (143)
<223> n equals a,t,g, or c
<400> 170
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atggtggtgt gtgcctatag tcccactact tgtggggcta aggcaggagg ntcacttgag 120
ccccggaggt cgaggctaca gtnagccaag agtgcactac tgtactccag ccagggcaag 180
agagcgagac cctgtctcaa taaataaata aataaataaa taaataaata aataaataaa 240
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taaaaaaaaa caaagttgat taagaaagga agtataggcc aggcacagtg gctcacacct 300
 gtaatccttg cattttggaa ggctgaggca ggaggatcac tttaggcctg gtgtgttcaa 360
 gaccageetg gteaacatag tgagacaytg tytytaccaa aaaaaggaag gaagggacae 420
 atatcaaact gaaacaaaat t
                                                                    441
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 <211> 403
 <212> DNA
 <213> Homo sapiens
 <220>
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 <222> (399)
 <223> n equals a,t,g, or c
 <220>
 <221> misc feature
 <222> (401)
<223> n equals a,t,g, or c
<400> 171
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tgagattctt tgtttgattg atggggtgat ggtttctgtt gtgtacattt gaaggaaacc 180
agtttcccca cccaaaattt ctaaggagtt taatctttgg ggtrtagggg agttaaacta 240
cactgagtca aggaagtaat tgattgcata tttcctctaa aagtcagcta tggrttgata 300
ttgactaaaa caaactagca gttctcttcc accaccaagt cmgagcgtct gttcaccatt 360
ctgcatggtt aaaagraccc acttagggat gggtaatgnt ncc
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<210> 172
<211> 984
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c
<400> 172
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ggtggtgtag ggccgggcga taatggcggc gtcgaggctg gagctaaacc tggtgcggct 180
gctatmccgc tgcgaggcga tggcagcgga gaaacgggac ccggacgagt ggcgcctgga 240
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ggcctctgag gtgatcaatg aatattcctg gaaggtggat tttctgaagg ggatgctgca 360
ageegagaag etgaeeteet eeteagagaa ageaetggee aaceagttee tggeeeetgg 420
ccgtgtgcca accacagcca gagagcgagt gcccgccaca aagacggtgc atctgcagtc 480
acgggcgcgg tacaccagcg agatgcggag tgagctacta ggcacggact ctgcagagcc 540
tgaratggac gtaaggaaga gaactggagt ggcagggtcc cagccagtga gtgagaagca 600
gtoggcagot gagotagaco togtootgoa gogacatoag aacotocagg aaaagotggo 660
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109

```
ggaagagatg ctaggactgg cccggagcct caagaccaat accctggccg cccagagtgt 720
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 gaaactgaag acggagtcag agcgtctgga gcagcacacg cagaagtcag tcaactggct 840
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 <212> DNA
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<222> (13)
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<222> (16)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (110)
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<222> (1153)
<223> n equals a,t,g, or c
<220>
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<222> (1175)
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<223> n equals a,t,g, or c

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  ttagaaaaaa cattagaaat gttaatatgg gatatttttg acttaagaca ttcagaaaag 180
  ttaatgtttt aacacgatat gtgattatag aattctattc atatatgtgt tcacatttat 240
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  tctcacccct tttaaactcc ttcaagcatt gctattactg gggttgcctt tgggaaaact 480
  tacttctaga tactaccata tatctgaaat agtagaggtg gatgttaata aaattcataa 540
  aataatcatg tattactttt tttgatttac cactggaagg aaatacagtc atgtgcaata 600
  taatgacgtt ttggtcattg agacccacat gtgtgacagt ggtcccataa ggatgttgct 660
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  ttactcacct gttcatggtg atgctggtgt aaacaaacct gtgctgccag tcatacaaaa 780
  gtatagcaca atgacaatta tgtacagttt atcataattc ttgataataa atgactatgt 840
  tacaggttta tgtattgatt ccactttttg tcattatttt ggaatgtact cctactaatt 900
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  gaagaagaca ttgttaccat aggagatgac agctctatgt gtgttattgc ccctgaagac 1020
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 <213> Homo sapiens
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 greagggeae teaceagtge agaggeagaa gtgggtgeet gteetegagg gttaaceege 180
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 tagccacctg ggctgtcagc catgagggaa ggaccctcgt tttagtctcg gattgtaagg 480
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 <211> 1181
 <212> DNA
 <213> Homo sapiens
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 <222> (7)
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<220>
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<222> (24)
<223> n equals a,t,g, or c
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<222> (79)
<223> n equals a,t,g, or c
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taatatat ctacaatata tattatatat atctatatca tatttctgtg gagggttgcc 180
atggtaacca gccacagtac atatgtaatt ctttccatca ccccaacctc tcctttctqt 240
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gcgagaaggg gaaaaatggg aaatagtctg attttaatga aatcaaatgt atgtatcatc 360
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acaatctacc aactgtccct ttgtttgaag ttggtttagc tttggaaagt tactgtaaat 540
geettgettg tatgategte cetggteace egactttgga atttgeacea teatgtttea 600
gtgaagatgc tgtaaatagg ttcagatttt actgtctatg gatttggggt gttacagtag 660
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taaaatctga attttgcaat gtatttagct acagcttgtt taacggcagt gtcattcccc 840
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taggttttaa atctgcttta gtttcacatt gcagttagcc ccagaaaatg aaatccgtga 1080
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cctatggaaa aaaaaaaaa aaaaaaaaa a
                                                                  1181
<210> 176
<211> 489
<212> DNA
<213> Homo sapiens
<400> 176
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gtcgttttgt tcaaggaaat gttttgtaaa ttgagctcac actatataat ctttattgtc 180
ctatcctgat gtataataca gcaggtataa ttacaccaag cgctatagtt ataaatatgg 240
catgaagtga actatggcct tttatttcct tccagtgtga acacagcagg tgtgagatgt 300
catcttggaa gacaggcctt gcagaaatag gcctacatcc aaaatattat cttgtgactc 360
catgaaccat tcattaaccc tttgtatctt tgagtgaaaa ttttactcaa aagttgcatc 420
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  <212> DNA
  <213> Homo sapiens
  <400> 177
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  gttcttgttc cacctgctag aattctgttt actactgaac caattttcca gagcagtcgc 180
  ggccaaatgg aaggacgatg tkattaaatt atgcggccgc gaattagttc gsgcgcarat 240
  tgccattttg ggg
                                                                     253
  <210> 178
 <211> 393
  <212> DNA
  <213> Homo sapiens
 <220>
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 gaateteece acceaceae actgeageag getgeggetg geegaettgt taattgeega 180
 gcaggaacac agcagcaagc tgcgggcacc cctnacttgc tacagttgat ggctgtgtgt 240-
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 <210> 179
 <211> 465
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <222> (377)
 <223> n equals a,t,g, or c
<400> 179
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 caagatgctc tgggtggtgg gatgggagac catcctgcag ccctcctcag accttatcaa 180
 ttcattgaga gattgcaaag ctgaaagcac ctccggccac tcctgggaga cagacccttt 240
 ggtgatgaaa taaaccagtg acttcagagc ctatggtctc aactgtgctt gaaaaacact 300
 gtctctgaaa acaactttgt gattctccct gctccctgtg gacaaaagca cataattctg 360
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ctgttacggg tacttgnstc atacgagett teatgtteag catgeaatgg aateatgett 420
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<211> 532
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (68)
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<220>
<221> misc feature
<222> (140)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (496)
<223> n equals a,t,g, or c
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cccagataga gatgctagan aaagtgcata gctatggggt gcacagctct gtttgccttc 180
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<211> 814
<212> DNA
<213> Homo sapiens
<400> 181
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aacatttgaa gaaaaaataa aactgtagac cctaacagtt gtgatatttg gtggkttcat 660
```

and the second second second second

```
gtggtaatgt aattttctgk ttaattacag tactttttac aggcacagtg gkactgtctt 720
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<213> Homo sapiens
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<210> 183
<211> 243
<212> DNA
<213> Homo sapiens
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<223> n equals a,t,g, or c
<220>
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<222> (181)
<223> n equals a,t,g, or c
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ctgtagctaa ttattgttat taaatgttaa gataatttaa gtatataana taagtattga 180
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gtt
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<211> 1148
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 tgtgtgtttg tgttagtttt ggatgtcttt gtgtaatcca gccccatttc ctgtttccca 1920
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cttcaaactt gtttatttaa tattaagttt tcatttttgg cagcatatgg atgatttat 240
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aaaattgggc caggtgtggt ggctcacgcc tgtaaatccc cgcactttng ggnggctgag 360
gcaggn
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<210> 187
<211> 350
<212> DNA
<213> Homo sapiens
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<222> (341)
<223> n equals a,t,g, or c
<400> 187
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ataaatgggc ctaatagtgg gatggatata actgaaaact aagatggtga tgaggaagac 120
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agtcaagaat aaatatacca aagtagcaaa gaaatacctg tgcaagtaga atagcttgct 180
tcaaacagat gagatttgtc ctcccaacat caaaacatat cacaaaacta cagtaattaa 240
gtccctttga ggccagcact gactgggrta agcaaatagr taaatgggat gtaacaggcc 300
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tctcagtttt atggctggag acatgattta ttgcagccat ccatcttggg ggctcatcca 240
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gatga
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<211> 817
<212> DNA
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<222> (791)
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ttattgcttc atgcttcaat gcactgtttt aaaatactgt ttaatttgtt aaaggtgtga 180
actgtttaat ttatctcaca cgttttttta aacaaatact gattggacat gcgctgcacg 240
ccaggctttg ggcttggtac ctcagggttc tcacagggga ggctggaagt ggaaacaagc 300
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<212> DNA
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<223> n equals a,t,g, or c
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<222> (573)
<223> n equals a,t,g, or c
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<222> (577)
<223> n equals a,t,g, or c
<400> 191
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ggaagaatcc tgtgacaagc acttactcca aaatgagtct acagttatac caagtggata 180
gtagaactta tctactggat ttccgtagta ttgatgatga aattacagaa gccaaatcag 240
ggactgctac tccacagaga tcgggatcag ttagcaacta tcgatcttgc caaaggagtg 300
attcagatgc tgaggctcaa ggaaaatcct cagaagtttc tcttacctca tctgtgacct 360
cacttgactc ttctcctgtt gacctaactc caagacctgg aagtcacaca atagaatttt 420
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Committee of the committee of

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ttgagatgtg tgcaaatcta attaaaattc ttgcacaata aacagaaaac tttgcttatt 480
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<222> (302)
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<211> 343
<212> DNA
<213> Homo sapiens
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agactcacac agacatcagg actaccagct gcgggaagga gctagccatc tcaggtctcc 180
ttgaatcatc cagatgacct gcctgtggaa aggagctacc catcacaggt ctacttcctg 240
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<210> 194
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<213> Homo sapiens
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<221> misc feature
<222> (261)
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attgccaaag ccccattatc aggtgggtac acatagagct tttgggagga acagatgcca 180
taagttatca gtttagtett acettetett tagagggaaa agaagttgga gaaagegtet 240
gcagctaaca aaaggtactg nccttgg
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 ataatgaatg catcaacatt tggatgatct gtattacagg tgaaccaaca ttttccagta 180
 ttagtggtgg ggaatgaccg tgtcwgaagg cttgaccagg atggggatag ctcaaggagg 240
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<212> DNA
<213> Homo sapiens
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<210> 199
<211> 258
<212> DNA
<213> Homo sapiens
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tcagctcaag ccttcacggg gcagggccaa aagcaacttn gaggggtggg tggagcatct 180
tccactgcag cttggcccca agaaataggw tgtagcagca gytcagcttg tgggatggtg 240
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<212> DNA
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 gcaagaggaa ggtggagcag gtttcttcat cttacagttg agaaaacaga gactcagaag 180
ggcttcttag ttcatgtttc ccttagcgcc tcagtgattt tttcatggtg gcttaggcca 240
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aaaaatatga aattatcaga aggattatag tgcaatctta tgttgaaaga atgaactacc 600
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atttttaaat attctgagat actcttgtga ggtcactcta atgccctggg tgccttggcc 720
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<211> 503
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (480)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (493)
<223> n equals a,t,g, or c
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attttgctta tgaaaaatca ttatttttag tgtagttcac aataatgtat tgaacatact 360
tctaatcaaa ggtgctatgt ccttgtgtat ggtactaaat gtgtcctgtg taccttttgc 420
acaactgaga atcctgcagc ttgggtttaa tgagtggggt catggaataa ttatgggggn 480
atgtaaaaa aanaaaagag ggg
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<211> 438
 <212> DNA
 <213> Homo sapiens
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<222> (412)
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<222> (425)
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<221> misc feature
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<222> (804)
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<222> (15)
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جاري ويوجون ويعرب ويعجون والمناف والماليان والمالي والمالي

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143

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<211> 2833
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<222> (1255)
<223> n équals a,t,g, or c
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149

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<220>

<221> misc feature

<222> (3024)
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<223> n equals a,t,g, or c

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<221> misc feature
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 ctactgaaaa tacaaaaaat tagccaggtg tggtggcaca atgctgtaat cccagctact 240
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420

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tgtaaccaag aaagtggcta agagcccaaa gaaggccaag gttgcgaagc ccaagaaagc 600
tgccaaaagt gctgctaagg ctgtgaagcc caaggccgct aagcccaagg ttgtcaagcc 660
taagaagcgg cgcccaagaa gaaatagcga acgcctactt ctaaaaccca aaargctctt 720
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aaaaaaaaa aaaaaaaa
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<222> (436)
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gttcctgcac aacctcagag gggcaaaaac cctccccagg aaggaggagg gtgttcagga 360
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caacaactgg g
                                                                   1691
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<211> 454
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (425)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<223> n equals a,t,g, or c
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 <222> (451)
 <223> n equals a,t,g, or c
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 tgggtcactg gtgtttgagg attttgctaa cctgacgccc tttgtcaagg aagagctgag 180
 gtttgccatc cagaacaagc acctctgcca ccggatgtcc tctgcgctgg aatcagtcac 240
 tgtcagcgac agacccctcg gggtgtccat cacaaaagcc gaggtagccc ctgaagaaga 300
 tgaaaggaaa aagaggcgac gagaaagaaa taagattgca gctgcaaagt gccgaaacaa 360
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                                                                    454
 <210> 391
 <211> 807
 <212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (527)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (586)
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<222> (735)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (805)
<223> n equals a,t,g, or c
<400> 391
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gcgcggagaa gaacggggag ccagcatcat ggcagaacag gatgtggaaa acgatctttt 180
ggattacgat gaagaggaag agccccaggc tcctcaagag agcacaccag ctccccctaa 240
gaaagacatc aagggateet aegttteeat ecacagetet ggetteeggg aetttetget 300
gaagccggag ctcctgcggg ccatcgtgga ctgtggcttt gagcatcctt ctgaggtcca 360
gcatgagtgc attccccagg ccatcctggg catggacgtc ctgtgccagg ccaagtccgg 420
gatgggcaag acagcggtct tcgtgctggc caccctacag cagattgagc ctgtcaacgg 480
acaggtgacg gtcctggtca tgtgccacac gagggagctg gccttcnaga tcagcaagga 540
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 ccaggegeca ettggkttet gmagetttgk tageetegge tetggecear ccageattta 660
 ccaagettgg caagggcage tgcetttgaa ggtttgcagt ggtttttgct cettaaaage 720
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 <210> 392
 <211> 927
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <222> (916)
 <223> n equals a,t,g, or c
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cactcaagag caagctcagg cgaggaaacg agacctcttt cgttccttct agaaggtctg 120
 gaggacgtag agttattgaa aatgcagatg gttctgagga ggaaacggac actcgagacg 180
 cagacttcaa tggaaccaag gccagtgaat aagcaacttt ctacagtttt gcaccacggc 240
 caaaacccag cagactgtac ttagcattgt ctaaatccat tctcaaattc caaatatcac 360
agacacccct cmcacaggaa acttcgcagt gatgcaccag gcgaggaaac gagacctctt 420
togttootto tagaaggtot ggaggacgta gaagttattg aaaatgcaga tggttotgag 480
gaggaaacgg acactcgaga cgcagacttc aatggaacca aggccagtga ataagcaact 540
ccaacaacaa cccagaacaa agcaaaaccc agcagactgt acttagcatt gtctaaatcc 660
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tccagcctgg gcaacgtagt aaaaacctca tctatacaag attttaaaaa taagctgggc 780
gtggtggtac acacctgtgg tcccagctac tagggaggct gagccaggaa gaacgstyca 840
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<211> 1023
<212> DNA
<213> Homo sapiens
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aggaagcagg aggagcaaga gccaactgga gaagagccag ctgtgttggg aggagacaaa 480
gaaagcacaa ggaagaggcy caggagagag gccccaggga atggaggcca ctcagcaggc 540
cctagetgge ggeacatteg ggetgaggge etggaetgea gttacaeagt eetgtttgge 600
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 attcccgtgg gaaaagcccc tccaggaggg tggcggtggt caggctgccg ctggcccacg 840
 ggagcttact aatgatgaac cacccgacca acacgcactg gtaccacagt cttcccgtga 900
 gaaagaaggt tetggeteea egggtgaate tgaetttteg taaaattttg ettaetaaaa 960
 aaa
                                                                 1023
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 <211> 822
 <212> DNA
<213> Homo sapiens
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<222> (550)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (788)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (813)
<223> n equals a,t,g, or c
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tottotottn cagotocott agottggoto ogtaagtgga toacttgcca aatgotttag 600
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taadaataat tacattatgo ttotattota toatotaaaa cmaatcatta aaactaattt 720
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<211> 1702
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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 <223> n equals a,t,g, or c
 <220>
 <221> misc feature
 <222> (1696)
 <223> n equals a,t,g, or c
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gcagagatag ccgtgtgagc agtctcagct caagctgccc cccatttctg taaccctcct 420
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agaagaaaga ttgctataak gtataatggg aaatgtttgg ccatgcttgg ttgttgcagt 660
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<213> Homo sapiens
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<211> 1110
<212> DNA
<213> Homo sapiens
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<222> (996)
<223> n equals a,t,g, or c
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<222> (1100)
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<222> (1106)
<223> n equals a,t,g, or c
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accepted catecate ttt gegetegege tetteaatga cecagegee aegetege 540
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<222> (830)
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<211> 271
<212> DNA
<213> Homo sapiens
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<222> (251)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (263)
<223> n equals a,t,g, or c
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<211> 925
<212> DNA
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<223> n equals a,t,g, or c
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<222> (844)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (900)
<223> n equals a,t,g, or c
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tetteetgga ggagetgace aaagtgggeg eegangsage ttaeggeaga ceagaacetg 660
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<222> (343)
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<213> Homo sapiens
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<212> DNA
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<221> misc feature
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 <221> misc feature
 <222> (783)
 <223> n equals a,t,g, or c
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<222> (1099)
<223> n equals a,t,g, or c
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<222> (1181)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<212> DNA
<213> Homo sapiens
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<211> 1174
<212> DNA
<213> Homo sapiens
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<223> n equals a,t,g, or c
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<221> misc feature
<222> (7)
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<212> DNA
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<213> Homo sapiens
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<223> n equals a,t,g, or c

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tgtcacagct ctgctctatt tattattatt ttgcaaaata accattttaa catttgataa 2040
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<211> 1884
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<213> Homo sapiens
<220>
<221> misc feature
<222> (56)
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<220>

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<221> misc feature
 <222> (283)
 <223> n equals a,t,g, or c
 <400> 420
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 cagcggcgcc tgggcattcc aaagaacccc tggctgtgga gtgagcaaca ggtatgccag 240
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gacagaagat caatatgaag aaaattcaca cctcacctcc gttcctcatt ggattaacag 480
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<210> 421
<211> 622
<212> DNA
<213> Homo sapiens
<400> 421
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 <222> (489)
 <223> n equals a,t,g, or c
<220>
<221> misc feature
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<210> 424
<211> 3118
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (388)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (485)
<223> n equals a,t,g, or c
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ggccgagaga gctcggtgcc cgcccttccg ctcgcctttt tcgtcagctg gctggagcag 360
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acgggcggag acttcgggaa tccgctgagg aaattcaagc tggtgttcct gggggagcaa 480
agckntggaa agacatcttt gatcaccaga ttcatgtatg acagttttga caacacctat 540
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<211> 1410
<212> DNA
<213> Homo sapiens
<400> 425
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 cattgattot ttooctttgo taattttttt ttttgttaat ggtagotgog actttaggtg 1020
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<210> 426
<211> 1422
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (328)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (479)
<223> n equals a,t,g, or c
<400> 426
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agaagcatga gcctttctga ctgtctacat gttcttgccc agttttaact tctagtcatg 120
gcgaatgatc gcaggagagc acagactgga ccctgctacg atctctcttg gagtggatca 180
gactgatgat caccaacaac caactcattc ccggataagg aagaagagag tgtcacctac 240
ttcagtgtgg tttcaaccct acttctgcat cttaaagaca ctgtatggtt tcagcagtag 300
tgcccctgtt cattagtccc cctgatgntt tcattcctca tctcatcttt ttcttagcag 360
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tcaccttgtt ttgtcctgtg acttttttga aaaaaacaaa aacaaaaaac ccttttttnc 480
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cagttagtaa agtacattca cattgtggtg caagccatca ctaccatcca tcactagaac 600
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cacageteet ageaaceaac attetaettt etetateagt ttgaetaete taggtaeete 720
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 <211> 830
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
 <222> (686)
 <223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (772)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (809)
<223> n equals a,t,g, or c
<400> 427
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acgccggtct ctgttccgca gatggggttt gttaaagttg ttaagaataa ggcctacttt 120
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<210> 428
<211> 1622
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
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<222> (76)
 <223> n equals a,t,g, or c
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gaccagtotg ggggcgctgg cggcctgcgc agcacctcaa gatcacagat tctgctggcc 540
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<210> 429
<211> 548
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (48)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (385)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (453)
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<223> n equals a,t,g, or c
 <220>
 <221> misc feature
 <222> (512)
 <223> n equals a,t,g, or c
 <400> 429
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 aaggaggtga agagaacaga gaaagagatt tccatttctg ctgccagagc tggtatttgc 180
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                                                                    548
<210> 430
<211> 569
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (381)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (553)
<223> n equals a,t,g, or c
<400> 430
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<210> 431
<211> 549
<212> DNA
<213> Homo sapiens
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 <222> (519)
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 <222> (541)
 <223> n equals a,t,g, or c
 <400> 431
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agetgatttg ategaggage geggttaeeg gaegggetgg gtetatggte geteegeggg 180
ccgctccgcc ggctggtgct tttttatcag ggcaagctgt gttccatggc agggaacttt 240
tggcagaget cecaetattt geaatggatt ttggataaac aagatetgtt gaaggagege 300
caaaaggatt taaagtttct ctcagaggaa gaatattgga agttacaaat attttttaca 360
aatgttatcc aagcattagg tgaacatctt aaattaagac aacaagttat tgccactgct 420
acggtatatt tcaagagatt ctatgccagg tattctctga aaagtataga tcctgtatta 480
atggctccta catgtgtgtt tttggcatcc aaagtagang gaaaaaaaat tttttttttt 540
nggggggg
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<210> 432
<211> 1221
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (1160)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1183)
<223> n equals a,t,g, or c
<400> 432
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tggggcctcg cggctccaga gcccagcatg gcttcctcgc gagcctcttc cacggcaacc 120
aaaactaaag cacccgacga cttagttgct ccggtcgtga agaaaccaca catctattat 180
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tttgaaattg aagagcatat cagcgagcga caggcagaag tattggctga gtttgagaga 360
aggaagcgag cccggcagat caatgtttcc acagatgact cagaggtcaa agcttgcctt 420
agagccttgg gggaacccat cacacttttt ggagagggtc ctgctgaaag aagagaaagg 480
ttaagaaata toototoagt tgtoggtact gatgoottga aaaagaccaa aaaggatgat 540
gagaagteta aaaagteeaa agaagagtat cageaaaeet ggtateatga aggaceaaat 600
agcttgaagg tggcaagact atggattgct aattattcgt tgcccagggc aatgaaacgc 660
ttggaagagg cccgactcca taaggagatt cctgagacaa caaggacctc ccagatgcaa 720
gagetgeaca agteteteeg gtetttgaat aatttttgea gteagattgg ggatgategg 780
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cctatctcct actgtcactt tagtcccaat tccaagatgc tggccacagc ttgttggagt 840
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aacacaaatg taggagcaat tgtattccat cccaaatcca ctgtctcctt ggacccaaaa 960
gatgtcaacc tggcctcttg tgcggctgat ggctctgtga agctttggag tctcgacagg 1020
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<210> 433
<211> 1115
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (45)
<223> n equals a,t,g, or c
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aaaatgctgg gattacaggc ctgagccact gcgcccagcc aggatttgaa ttattttaac 180
tcatccatgg gctgccctag aatgtcacaa atgagggttg tttaatgcct ttcttatagc 240
tgctactgga acactattat gacctaattt atgagccatc cttactcatc tacaagtgct 300
gaagcaatgt tacatacttt tttgctaaac tcagattttt tagcctaatt tcttgtcctc 360
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ccatgcttca gggtatagct gttggtggac agcctcaggt cttgggggca ctatagccac 480
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tetteaagea atettggaat ceteaactge agtaageatt teaaaatgea aacaaactge 660
ttaacaactg acaagacacc agcccatacg ctgctcttcc aacagtgggt tctagctttg 720
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tactggtgct cttgtcacag gtagaacagc ttgtttcttt tccatctatt caagtgtgtt 840
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tagtttgtct tgttttmaaa tattattggt gcatgtacaa cagcatccaa catatctgtc 960
ttgttcctag atatatagct ctgattttag gccttttgtg cataccatta caatatggtg 1020
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<210> 434
<211> 1604
<212> DNA
<213> Homo sapiens
<400> 434
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gtgacctcct tccagatatc aggcagtgag tgtaaacctg ccacctccag ccctgatcca 180
ttctcaccta gcggctacag gaagctgtgt ctgttcgatt tggtgggagg agatgtgcag 240
ggagctgtat cttgtcctcc gcttgtgaaa aactcaagga tgtggagaag agtagaccgt 300
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 gtactttctc cttgcttcac tggccacagc atctccctcc agccctcgct atgtgcctct 480
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 gtgaaggacc aggcctggag agcacagggt cctacctggg catccagcag aggagcccct 600
 cagocototo otactttgat caccatttot otocaggott totgootoog agatgtggca 720
 ccatagtgcg gtgccctgtg gcttcaccgc cctacttcca cctccgccca gcctgtaatg 780
 tttatataag cagcctcaag gaccaagaac catctgcgaa aggacacaca caggaaattc 840
 ataaaagaaa totgaatgga taaaaccatg aaaaaaagta tgottoatta gtaattaaag 900
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catcggtgca ggcttcctgg atgacagttg ggtgatatgt gtcatgtggc ctaaaagcct 1080
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<211> 301
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (274)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (277)
<223> n equals a,t,g, or c
<400> 435
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gccacgctgc aggcccgcca gcagctggag ctggaggagg tgcaccggag ggtgaagaca 180
gccctcgcga ggaaggagga ggccgtgagc agcctccgga cacaacatga ggtgagtccc 240
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<210> 436
<211> 318
<212> DNA
<213> Homo sapiens
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 <221> misc feature
 <222> (242)
 <223> n equals a,t,g, or c
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cctggctatt attccatgag gtcgtcacat tttaaccttt tgcataagcc tccaacggcc 180
tgatggaatg atgaagcctc agaacagttt ctacacaatg gctaagggat gtacccattt 240
tnaattttcc tcttttctgt gatcacagag ggtgaatacg ctttggccgg atacacagaa 300
gtgaaaactg tcacccat
<210> 437
<211> 1882
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1793)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1795)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1818)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1826)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1844)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1855)
<223> n equals a,t,g, or c
<400> 437
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ccgcgccgac catgtcgmag ccaaggagaa cccgtgcagg aaattccagg ccaacatctt 120
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<223> n equals a,t,g, or c

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 ggacctgacg caggcaaaac ccatttatgg cggttggctg ctcctggctc cagatgggac 240
 cgactttgac aacccagtgc accggtctcg gaaatggcag cgacggttct tcatccttta 300
 cgagcacggs ctcttgcgct acgccctgga tgagatgccc acgacccttc ctcagggcac 360
 catcaacatg aaccagtgca cagatgtggt ggatggggag ggccgcacgg gccagaagtt 420
 ctccctgtgt attctgacgc ctgagaagga gcatttcatc cgggcggaga ccaaggagat 480
 cgtcartggg tggctggaga tgctcatggt ctatccccgg accaacaagc agaatcagaa 540
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 accaccaagt ccacactctg gcaggaagaa atgaggacca aggaccagcc agatggcagc 720
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aacaagagca gctgctcttt ttgagacctg cccgaggcct actgagaagc aagaggcaga 1620
gctgggggag ccggaccctg agcagaagag gagccgcgca cgggagcgga ggcagagggc 1680
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gggaagctgg agcgggancg tgcacngaag cgggaggagc gccncaagcg cttcnggatg 1860
ctcgacgcca cagaacgggc ca
                                                                   1882
<210> 43'8
<211> 2056
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (2046)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (2053)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (2054)
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<400> 438
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 ggaagttttt aaaaatgtca ttactttcaa aggaacagaa gtagttaacc aaactaacaa 360
 gcaaaacctg aggtttacct agtgacacca aattatcggt attttaactg aatttaccca 420
 ttgactaaga atgaaccaga tttggtggtg gttttgtttc tatgcaaact ggacacaaat 480
 tacaacagta aattittita taagtgette teeettetee atgatgtgae tteeggagat 540
 aaaggattca aaagataaag acaaagtacg ctcagagttg ttaaccagaa agtcctggct 600
 gtggttgcag aaacactgtt ggaagaaaag agatgactaa gtcaagtgtc tgccttatca 660
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 taatgatttt ggtgcaggaa cctgagattt tctgatttat atttcatgat atttcacatt 1260
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 tcattgcagc ctgaaatttt aaaaaagttg tgtaatacgc caaccagtca agttgtgttt 1440
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 tataaaaagc aagaattetg ttteetagge aaacattgea acteaggget aaagteatee 1560
 agtgaaactt ttagagccag aagtaacttt gtcccagtcc tacaatgtga aaagagtgaa 1620
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 aatcaatacg cactttcaga tattcttatt tttattctct taagtcttta ttaactttgg 1740
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 gataaagaac agaaaacatt tcaatatatt actaataact ttttccaata taaatcctaa 1860
 aattootata acatagtatt ttacagtttt atgaagottt ctattgtgac ttttatggaa 1920
 ttaagagatg aagaagatga gatattttag catttatatt tttcaaaatt atatgtatac 1980
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                                                                  2056
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. <211> 721
 <212> DNA
 <213> Homo sapiens
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<222> (688)
<223> n equals a,t,g, or c
<400> 439
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gctgtccggc tgccttgggc tgccgaacag acaaggcgtg ggccacagca cctcagaagc 120
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cgacgcaget cgacgcaggg gccggcagga gggtgggcga tegegtgteg gagggegeeg 180

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<212> DNA
<213> Homo sapiens
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
<220>
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<222> (1039)
<223> n equals a,t,g, or c
<400> 440
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 <211> 1995
 <212> DNA
 <213> Homo sapiens
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 <221> misc feature
 <222> (1957)
 <223> n equals a,t,g, or c
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 <221> misc feature
 <222> (1992)
 <223> n equals a,t,g, or c
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 <221> misc feature
 <222> (1995)
 <223> n equals a,t,g, or c
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PCT/US00/05988

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<212> DNA
<213> Homo sapiens
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<211> 1107
<212> DNA
<213> Homo sapiens
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<211> 2557
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (121)
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<222> (461)
<223> n equals a,t,g, or c
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cccacgacag ccctgccctt cccatgaggc aggctcttca gtgagtgttt gaacgtaatt 1140
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aagctttaaa agaattcaat gaagacggtg cattggcagt tcttcaacag tttaaagaca 300
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| ttgtttttgc | caagccacca | gatcagaaaa | ggaaagaaag | aaaagctcag | aggcaagcag | 1320 |
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| caaaaaatca | aatgtatgac | gattactact | attatggtcc | acctcatatg | cccctccaa | 1380 |
| caagaggtcg | agggcgtgga | ggtagaggtg | gttatggata | tcctccagat | tattatggat | 1440 |
| atgaagatta | ttatgattat | tatggttatg | attaccataa | ctatcgtggt | ggatatgaag | 1500 |
| atccatacta | tggttatgaa | gattttcaag | ttggagctag | aggaaggggt | ggtagaggag | 1560 |
| caaggggtgc | tgctccatcc | agaggtcgtg | gggctgctcc | tccccgcggt | agagccggtt | 1620 |
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| gaagactgac | ttgctatgtg | ggattacacc | agaagcttgc | agtggagtaa | tggtaaggaa | 1800 |
| atcaagcaac | cttaaatatg | tcggctgtat | aggagcatat | tctattgcag | aagaccttcc | 1860 |
| tatgaagatc | atggaatcaa | atacgggaca | ttgaactaat | acttggactt | tgatatgaat | 1920 |
| ttctttaaca | attttctctg | cagtgcaagt | tattaaacta | aagctactct | attttcaaaa | 1980 |
| tgtgttccaa | cagaaatcct | tcataactcc | tagcatggta | tcttaataaa | gaataaagtt | 2040 |
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| ggtattttga | aatattctct | tgaatttgtg | catttaaatt | ttattgcagt | ggtatagatg | 2160 |
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| tcaaaaaagt | gcatccgaac | ttgtactaaa | tactgcagtg | tccctttata | aaaagtcaga | 2580 |
| ctaaaactga | caattgtaca | gcgamsctga | catttggata | ttttgaagtt | ttttcataaa | 2640 |
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PCT/US00/05988

337

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| atgcatgtaa | a aaagaaagca | actccatcaa | ctactaccta | atcatgtgct | tcagaaaaag | 180 |
| aaaaagcatt | caacagaagg | tgtcaaattg | g acagetetea | atgacagcag | g cctcgacttg | 240 |
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| ccattgaaca | gttctggcag | ctctcagggd | agaaacagto | ctgctccago | : tgtaacagca | 360 |
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| agctcagggg | g gtacatcgag | tgaaagcatt | cctcaaactg | ccacacaaco | : agccatttct | 480 |
| ccaccaccaa | agcctacggt | ctccagagtt | gtttcttcaa | cacgtctggt | aaacccacca | 540 |
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| atagtaggag | , tcaagaggac | atcctcacct | cataaagaag | agagtcccaa | ı gaaaaccaaa | 660 |
| acagaagagg | , atgaaacaag | tgaagatgct | aactgtcttg | ctttgagtgg | , acatgataaa | 720 |
| acagaagcaa | aggaacaact | tgatacagag | acaagtacaa | ctcaatcaga | aactattcag | 780 |
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| tggtgacctc | ccttactggg | ctaatcagca | cttgatcgga | agtccaggtt | agtatgtgaa | 1080 |
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| | tgcattgttt | | | | | |
| ctgatgatgc | acttttatgt | atttttcatt | agaaagtaga | actaatttta | gattttcagc | 1320 |
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| ctgttgtgca | gtggtgtact | gttatacttc | agagaaaggg | taagagtaca | tctagttcag | 1440 |
| ttcctatgag | gtagctgtaa | cccttaaaaa | tgaaacgtca | actctagggt | acatttgaca | 1500 |
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| | agcttgtgaa | | | | | |
| | aaaaaagctt | | | | | |
| | cacaaggtan | | | | | |
| | gaaaccaatg | | | | | 1860 |
| | acttgagggt | | | | | 1920 |
| | gatctctaaa | | | | | |
| | cagttttaaa | | | | | |
| | taaatggttt | | | | | |
| | tctagcaagc | | | | | |
| | ttaagagctc | | | | | |
| aagatctatc | ttcacaaagt | atgagggatg | ccagatgttg | ataaacttac | tctttctgaa | 2280 |
| tctggacaaa | gtcgacttaa | cagatttttc | tgatgagcat | gttttatgaa | tcctccattg | 2340 |
| tgctccattc | tatcacatgt | gcatttttca | tgttaaactg | caattactta | atctcttccc | 2400 |
| ctatccttct | aaattaattt | tctgaagttg | gagtgtagtc | ttttccccct | taggctatgc | 2460 |
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| tcccacatct | ttgctttaca | cagtcacctt | gcccttcctt | ccaccaccga | agaaaaaaga | 2580 |
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| gaccttttct | gtgtagtgac | tttttaatta | tagttttcat | aacctggaga | tcagactgtt | 2820 |
| getttegeat | gatgtatgta | gtgtctcatg | actggagttt | gctttgtttt | atagtatctg | 2880 |
| Lactecttgt | atttttcaag | agctattttg | taaacagatg | atgtatttct | ccattgaaaa | 2940 |
| cacaataaaa | aaaaaacagc | acaaaaaaa | aaaaaaaaa | aaaaaaaa | aaaaa | 2995 |
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<211> 2871
<212> DNA
<213> Homo sapiens
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<222> (267)
<223> n equals a,t,g, or c
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 <222> (1642)
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<212> DNA

<213> Homo sapiens

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tagtgtgcaa gaacgagatg ttctaatgac tttttaaatg tgtaacttaa taagcctatt 240
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tcatactcca gaattctgct ctcagcaatt gcagttaagt aagttacact acagttctca 360
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gagcctttaa atgatttcaa ttccacagaa agaaagtgag cttgaacata ggatgagctt 720
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tttctcctta gaaaatctaa ttacttggaa caagttcaga tttcactggt cagtcatttt 1080
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<210> 517 <211> 2451 <212> DNA <213> Homo sapiens

~213> Homo Saprens

<400> 517

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<223> n equals a,t,g, or c

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                                                                    2451
<210> 518
<211> 989
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (336)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (871)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (891)
<223> n equals a,t,g, or c
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<222> (910)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (913)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (926)
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 <222> (947)
<223> n equals a,t,g, or c
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ggatetgggg agaaagagee ceatecette tetetetgee accatttegg acacecegea 180
ggactogttt tgggattogc actgacttca aggaaggacg cgaaccottc totgaccoca 240
getegggegg ceacetgtet ttgeegeggt gaccettete teatgaceet geggtgeett 300
gagccctccg ggaatggcgg ggaagggacg cggasncagt gggggaccgc ggggtcggcg 360
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gaaggaactt tottgattag agatagotog cattoagact acctactaac aatatotgtt 540
aaaacatcag ctggaccaac taatcttcga atcgaatacc aagacggaaa attcagattg 600
gactctatca tatgtgtcaa atccaagctt aaacaatttg acagtgtggt tcatctgatc 660
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ctaaaagatt acttgggaag aatataaatt nccaggtcca ggttccaata ngagagaaaa 900
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<210> 519
<211> 3315
<212> DNA
<213> Homo sapiens
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cccacctgga gggaagacca gcgacatttt tgggtctccg gtcactgcca cttcacgctt 180
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<210> 520
<211> 2361
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<213> Homo sapiens
<220>
<221> misc feature
<222> (2121)
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<400> 520
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tgaacacatt toottgaaaa atgttggtgg tttttgtgat tatttatttt tttagattto 180
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<210> 521
<211> 2521
<212> DNA
<213> Homo sapiens
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<221> misc feature

<223> n equals a,t,g, or c

<222> (2477)

<222> (1721)

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<223> n equals a,t,g, or c
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<222> (2516)
<223> n equals a,t,g, or c
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<210> 522

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<213> Homo sapiens
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<222> (1279)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1286)
<223> n equals a,t,g, or c
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and the second s

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tcacgccgtt atgttgcctc aaatagtttt agaagagaaa aaaaaatata tccttgtttt 1320
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gttttcatgc ccggcctttg ttcctccata aatgtgtcct ttagtttcaa acagatcttt 1560
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<211> 1893
<212> DNA
<213> Homo sapiens
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caccaagaag caaagttcaa cttatttcat aattgcctac atttatcatg gtcctgaatg 240
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tcattttaaa atgtcttggt cttctactgc cttgaaaaat gacaattgtg aacatgatag 420
ttaaactacc actttttta accattatta tgcaaaattt agaagaaaag ttattggcat 480
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ccgctgcccc atgtgtcctg gtgagaaaat atatgcctgg cacagctttt gtatagaaaa 720
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cagtettatt taaccagggg teetaaceae taacattgtg aetttgettt gagacettte 1740
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 <213> Homo sapiens
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atgogttcag cogatgaagg gcaaactgto ttotacacct gtaccaactg caagttccag 360
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aggtgaagga tactgggttt ttagatgcct tgtccatcct gtctggttgc aatgttttgc 480
teccagaaga gaateagate ateatgtggg gattaceatt gtteetggag tacteetace 540
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<210> 549
<211> 586
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (508)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (510)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (514)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (573)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (583)
<223> n equals a,t,g, or c
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<400> 549

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gcaagegcag ccgcaaagag agctactcca tctacgtgta caaggtgctg aagcaggtcc 180
accocgacac eggeateteg tecaaggeea tgggeateat gaacteette gteaacgaca 240
tettegageg categsggga gaggetteec geetggegea etacaacaag egeteeacca 300
tcacatcccg cgagatccag acggccgtgc gcctgctgct gcccggcgag ctggccaagc 360
acgccgtgtc cgagggcacc aaggcggtca ccaagtacac cagctccaag tgagtccctg 420
eegggaeetg gegetegete getegagteg eeggetgett gaetycaaag getetttea 480
garccaccca cctaatcact agaaaarnan cttngttcac ttaatttccc ctttaatttc 540
tttttccata aaargttaag ttaattttta agnggtgaaa ggntca
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<210> 550
<211> 1586
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1574)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1578)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1585)
<223> n equals a,t,g, or c
<400> 550
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gcagctgaag cacatcccgc agcccggcgc ggactccgat cgccgcagtt gccctctggc 120
gccatgtcgc agaacggagc gcccgggatg caggaggaga gcctgcaggg ctcctgggta 180
gaactgcact tcagcaataa tgggaacggg ggcagcgttc cagcctcggt ttctatttat 240
aatggagaca tggaaaaaat actgctggac gcacagcatg agtctggacg gagtagctcc 300
aagagetete aetgtgacag eccacetege tegeagacae cacaagatae caacagaget 360
totgaaacag atacccatag cattggagag aaaaacagot cacagtotga ggaagatgat 420
attgaaagaa ggaaagaagt tgaaagcatc ttgaagaaaa actcagattg gatatgggat 480
tggtcaagtc ggccggaaaa tattcccccc aaggagttcc tctttaaaca cccgaagcgc 540
acggccaccc tcagcatgag gaacacgagc gtcatgaaga aagggggcat attctctgca 600
gaatttetga aagtttteet teeatetetg etgetetete atttgetgge categgattg 660
gggatctata ttggaaggcg tctgacaacc tccaccagca ccttttgatg aagaactgga 720
gtctgacttg gttcgttagt ggattacttc tgagcttgca acatagctca ctgaagagct 780
gttagatect ggggtggeea egteacttgt gtttatttgt tetgtaaatg etgegtteet 840
aatttagtaa aataaaagaa tagacactaa aatcatgttg atctataatt acacctatgg 900
gatcaataag catgtcagac tgattaatgt ctactgtgaa aatttggtag taaattttca 960
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ymggggggg cccnggancc aattnc
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<210> 551
<211> 2143
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1602)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (2086)
<223> n equals a,t,q, or c
<220>
<221> misc feature
<222> (2097)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (2140)
<223> n equals a,t,g, or c
<400> 551
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aagaaaccac gaattgagga tgaagagtgt gtgcgccttg ataaagagag attggctgcc 120
cgtttggagg gtcacaaaga agggattgta cagactgaac agattaggtc tttgtctgaa 180
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gtggatecea etttgegeae caaacageet ateceagetg eetataacag atacgateag 540
gaaagattca aaggaaaaga agaaacggaa ggcttcaaaa ttgacactat ggggaacyta 600
ccatggtatg acactgraat ctgtaacgga gggtgcatct gcccggaaga ctcagactcc 660
tgcagcccag ccagtaccaa gaccagtttc tcaagcwaga cctcccccaa atcagaagaa 720
aggatetega acacceatta teataattee tgeagetace acetetttaa taaccatget 780
taatgcaaaa gaccttctac aggacctgaa atttgtccca tcagatgaaa agaagaaaca 840
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